Review Article

Genital contact allergy: A diagnosis missed

Yogesh S. Marfatia, Dimpal Patel, Devi S. Menon, Smriti Naswa[1]
Department of Dermatology, SSG Hospital, Vadodara, Gujarat, [1]Consultant Dermatologist, Fortis Hospital, Mulund, Mumbai, Maharastra, India

Address for correspondence:
Dr. Yogesh S. Marfatia, Department of Skin-VD, Medical College Baroda, Vadodara, Gujarat, India. E-mail: ym11256@gmail.com

Abstract

Genital allergy should be considered as a possible diagnosis in all patients with genital soreness or irritation for which no infection or dermatosis can be identified and in whom symptoms remain unchanged or worsen with treatment. It is an underreported and underdiagnosed condition as patients may not complain about symptoms in this area. Moreover, diagnosis and therapy may not often be conducted by a dermatologist or allergologist. Therefore, many cases of allergic diseases in the genital area remain undetected.

Key words: Consort contact dermatitis, genital contact allergy, nonsexual, sexual

INTRODUCTION

The genital area is exposed to various allergens and irritants due to hygienic and sexual practices that are not always obvious.[1] Irritants cause more intense reactions on vulval epithelium than nongenital skin due to higher transepidermal water loss, capacitance, and blood flow in vulva.[2] Often, low-grade erythema of vulva is not readily apparent because of pigmentation of skin of vulva. The patient may complain of burning and stinging of vulva, but examination may not reveal dermatitis.

In the genital area, Type IV allergies such as contact dermatitis exceed Type I allergies. Contact urticaria can occur due to seminal plasma allergy or latex allergy and a transfer of Type I allergens via semen. Methylisothiazolinone in leave on and rinse off products is a new and important contact allergen for the genital area.[3]

Genital hypersensitivity reactions can be subdivided into sexually related reactions and nonsexually related reactions.[1]

Access this article online

Quick Response Code:

Website: www.ijstd.org

DOI: 10.4103/0253-7184.180286

SEXUALLY RELATED HYPERSENSITIVITY

Seminal fluid hypersensitivity

Human seminal plasma (HSP) hypersensitivity is defined as a spectrum of systemic and/or localized symptoms after exposure to specific protein components in seminal plasma. It is a rare disorder that is often misdiagnosed. It may mimic chronic vaginitis.

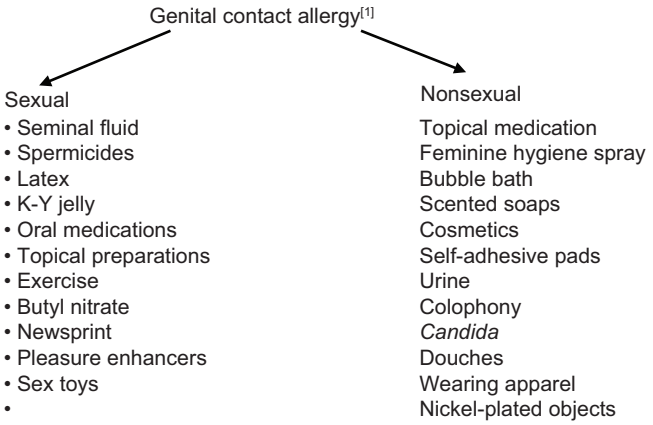
Risk factors

There are no known risk factors for developing seminal plasma hypersensitivity although women who develop systemic symptoms are more frequently atopic.[4,5] An association has also been found between the onset of seminal fluid allergy and genital tract procedures.[2,4]

Etiology

Hypersensitivity reactions to seminal fluid other than Type I is less common.[6] The major antigen is believed to be prostate-specific antigen, but other proteins are likely involved in this heterogenous disorder. Sephadex

How to cite this article: Marfatia YS, Patel D, Menon DS, Naswa S. Genital contact allergy: A diagnosis missed. Indian J Sex Transm Dis 2016;37:1-6.



G-100 fraction 2, derived from HSP, shows greater reaginic activity than other chromatographic fractions. According to a study by Sublett and Bernstein, reaginic humoral antibodies to HSP were present in two women with systemic reactions.

Localized vaginal hypersensitivity

In women with recurring vaginitis, treatment of a vaginal *Candida* infection is not always accompanied by an alleviation of symptoms, and infection frequently reappears. The detection of specific IgE antibodies vaginally but not in the peripheral circulation suggests the occurrence of a localized vaginal hypersensitivity response. Vaginal fluids with IgE antibodies also contain detectable levels of prostaglandin E2. A vaginal allergic response can predispose to recurrent *Candida* infection by inducing prostaglandin E2 synthesis that suppresses cell-mediated immune responses.[7]

Clinical features

Symptoms may occur with first exposure or after years. Most of the cases of both systemic and localized seminal plasma hypersensitivity occur after first-time intercourse. Local responses include genital swelling, burning, irritation, or soreness. These occur during or soon after intercourse, becoming maximal at 24 h and last 2–3 days. Generalized reactions include angioedema of lips and eyelids, laryngeal edema, bronchospasm, and anaphylaxis.[4]

Infertility has not been demonstrated to be directly related to seminal plasma hypersensitivity although women with the condition frequently have difficulty conceiving due to their inability to have unprotected sexual intercourse.[8]

Spermicides hypersensitivity

This condition more commonly affects men. Sensitising agent may be one of the active compounds. Benzocaine, monophenoxypolyethoxy derivatives, hexylresorcinol, chloramine, quinine, or an associated fragrance.[9] Nonoxynol-9 may also cause genital soreness and irritation.[10]

Condom allergy

It may be due to the latex, color, fragrance, flavor, or concomitant use of pleasure enhancer and local anesthetics. Latex allergy can be either immediate (Type I reaction, anaphylaxis) or delayed hypersensitivity reaction (Type IV reaction).[11] Symptoms include urticaria, itching, cough, watery eyes, sneezing, runny nose, chest tightness, shortness of breath, wheezing, confusion, low blood pressure, dizziness. Hence, alternately, synthetic condoms made of polyurethane or natural membrane condoms (made from lamb intestine) can be used.

Latex fruit syndrome

Association of latex allergy and allergy to plant-derived foods is called latex-fruit syndrome. Fruits which cause this syndrome are avocado, banana, kiwi fruit, melon, peach, and less commonly fig, plum, chestnut, peanut, potato, papaya, and tomato. Patients allergic to fruits have 11% risk of latex reaction while patients allergic to latex have 35% risk of reaction to fruits. The prevailing hypothesis is that allergen cross-reactivity is due to IgE antibodies that recognize structurally similar epitopes on different proteins that are phylogenetically closely related [Figure 1].[12]

Connubial or consort allergic contact dermatitis

Connubial or consort allergic contact dermatitis occurs when the agent causing dermatitis has not been used by the patient but by his partner or other cohabitants or proxy. Most cases are due to fragrances, cosmetics, or topical nonsteroidal anti-inflammatory agents.

Connubial propylene glycol dermatitis K-Y jelly dermatitis

Propylene glycol is used as a vehicle for cosmetics, body lotions, antiperspirants, and topical medicines.[1] A case has been reported by Fisher and Brancaccio[13] of a 55-year-old man allergic to propylene glycol (proved by patch test) who developed severe pruritic dermatitis of penis, scrotum with erythema, edema, scaling, crusting following intercourse with his wife, who had used K-Y jelly.

Oral medications and genital allergy

Ingested antigens may pass into seminal fluid and rarely produce a hypersensitivity reaction in the sexual partner. A woman who was allergic to walnuts developed anaphylaxis following intercourse with her husband, who had eaten walnuts before

coitus. Walnut protein was subsequently detected in his seminal fluid.[14]

Topical medication sensitivity

A young woman repeatedly developed eczematous eruption on her face, neck, and arms after intercourse with a boyfriend who had used 5% benzoyl peroxide for facial acne. Patch testing showed her sensitivity to benzoyl peroxide. Eczema subsided when partner changed to topical antibiotic cream. A similar case of consort dermatitis affecting neck and chest caused by oak moss present in a partner's aftershave has also been described.[15]

Miscellaneous

Use of inhaled nitrites (poppers) by MSM has been associated with facial dermatitis.[13] Rare cases of persistent pruritis vulvae as a result of newspaper printers' ink sensitivity have also been reported.[1]

Rubber-sensitive women may acquire vulvitis, vaginitis from contraceptive rubber diaphragms. Male-rubber sensitive partners may acquire balanitis from contact with such diaphragms.

NONSEXUALLY RELATED HYPERSENSITIVITY

Urine

Irrritant ammoniacal dermatitis is to be considered in incontinent patients with genital soreness.

Colophony

This is due to resin used to wax the strings of musical instruments.

Candida

Genital hypersensitivity to *Candida* has been implicated in some cases of vulvovaginal candidiasis (VVC) and anti-*Candida* IgE antibodies are often present in the vaginal secretions of women with recurrent VVC. Forman has observed several cases of balanitis and balanoposthitis, caused by an allergic reaction to *Candida*.[16]

Topical medications

Ethylenediamine, framycetin, neomycin, clobetasol propionate, and crotamiton, topical anesthetics, clindamycin, and acyclovir have also been reported as causes of hypersensitivity reaction.[17]

Topical steroids

Contact dermatitis is to be considered if there is worsening of vulval symptoms, which may be due to the steroid preparation itself, the vehicle, or additives.[13,18]

Topical imidazoles

Miconazole, econazole, and tioconazole are uncommon causes of contact sensitivity.[19,20]

Aciclovir cream

Propylene glycol is considered to be most likely sensitizer.

Feminine hygiene sprays

Feminine hygiene sprays consist of perfume, emollient, and a propellant. Irritant reactions can occur from fluorinated hydrocarbon propellants sprayed too close to the genitals. This is more likely to occur if there is existent skin damage (secondary to candidiasis or dermatitis).[20]

Bubble baths and scented soaps

Prolonged immersion in baths containing perfumes may induce an irritant vulvitis, particularly in children [Figure 2].[21]

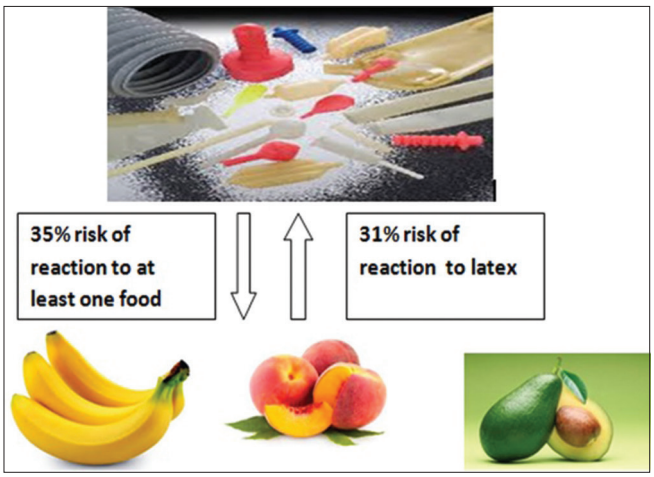


Figure 1: Latex-fruit syndrome

Figure 2: Nail polish

Cosmetics

Nail polish is a rare cause of hypersensitivity, especially if the vulval skin is touched before polish is dry.[21]

Self-adhesive pads

Fragrance and disinfecting agent in the pad (Copper (II) acetylacetonate and acetylacetonate) may produce contact dermatitis. Sensitivity to cinnamyl alcohol and cinnamic aldehyde (perfume) in deodorant sanitary napkin has also been reported.[22]

Personal care products

Shower gels, soaps (cleansers), deodorants/hygiene sprays, menstrual and incontinence pads, tampons, garments, and perfumes are other causes of hypersensitivity reactions [Figure 3].

Douches

Douches containing acid or alkali that are not properly diluted may produce irritant vulvitis. The main acid irritants are alum, citric acid, and lactic acid. Alkalis such as sodium bicarbonate or sodium borate in high concentrations may produce vulvitis.[23]

Nickel-plated objects

Objects such as pins, fasteners, zippers, and clasps on sanitary napkins can produce vulvitis in nickel-sensitive persons.[23]

Wearing apparel

Dyes and synthetic resins in under-clothing can produce dermatitis in sensitized women. Wearing of close-fitting undergarments, such as pantyhose, panty girdles, and tight sanitary napkins may produce vulvar irritation.[23]

Figure 3: Personal care products

A case has been reported wherein a man developed redness and edema of scrotum, sparing the thighs and inguinal region. Patch testing showed he was allergic to disperse orange 3, paraphenylenediamine, and para-aminoazobenzene. When he followed the advice to wear white cotton underwear, his condition dramatically improved.[24]

Contact sensitivity in pruritus vulvae

Genital pruritus may be associated with specific skin lesions of dermatoses such as eczema, lichen sclerosus, or others. Acute anogenital pruritus is usually caused by infections or contact dermatitis. Besides pruritus, other sensations such as burning, stinging, heat sensations, and pain may occur. Patients with pruritus vulvae and lichen sclerosus are at high risk of contact sensitivity.

Lewis *et al*.[19] studied 121 women with vulval problems. They were patch tested for preservatives, perfumes, local anesthetics, medicaments, and a vulval battery. Fifty-seven patients (49%) had one or more relevant allergic positive reactions most commonly to medicaments. Seven of the 16 patients (44%) with lichen sclerosus had positive reactions. It was found that patients who had a relevant allergy were much more likely to improve than those whose tests were negative.[19]

Contact balanitis

The glans penis and prepuce may acquire contact dermatitis from medicaments used by a sexual partner. After intercourse, cleansing the genital area with strong detergents may produce severe irritant dermatitis and even superficial erosions.

Poison ivy may cause severe balanitis and marked swelling of the foreskin and urinary retention. Sensitizing topical applications for dermatoses such as psoriasis and lichen planus may produce a superimposed contact balanitis.[23]

Diagnosis

History

This may be suggested by a history of past or present allergies or a personal/family history of atopy. A history of contact with possible allergens should be taken. The relation between the onset of symptoms and intercourse may provide useful clues.

In cases of seminal fluid hypersensitivity, the use of condoms will prevent symptoms and thus may be used as a diagnostic test.

Skin prick test

Positive prick skin test to whole seminal fluid or fractionated seminal plasma proteins are also diagnostic methods for seminal fluid hypersensitivity.

RAST

It is used to detect specific IgE antibodies to suspected or known allergens so as to come to a diagnosis about the cause of allergy.

Patch testing

Patch testing is used for assessing contact dermatitis and is considered a valuable investigative tool for patients with protracted vulval symptoms, particularly if there is no response or a worsening of symptoms while topical steroids are being applied. The patient is advised to bring all the personal care products he/she uses and Repeated Open Application Test can be advised. Testing should be performed with the British Contact Dermatitis Group standard series, a topical steroid series, medicaments, and other products suggested by the history.[1]

Vulval or vaginal provocation

Vulval or vaginal provocation with allergen followed by colposcopic examination of the epithelium is used as a means of assessing allergic vulvovaginitis.[1]

Treatment

Avoidance of potential sensitizer is the optimal approach to management. Hypoallergic condoms are to be used with caution in true rubber latex sensitivity. Condoms from synthetic materials (polyurethane) are advised.

Treatment of seminal fluid hypersensitivity includes the use of condoms and subcutaneous desensitization to relevant fractionated seminal plasma proteins obtained from the woman's sexual partner.

The intravaginal graded challenge, a form of immunotherapy, is a mainstay in treatment but is only effective if maintained correctly. It involves an intravaginal graded challenge using dilutions of whole seminal fluid or subcutaneous desensitization to relevant fractionated seminal plasma proteins obtained from the woman's sexual partner. Lucke TW *et al*.[24] reported a case wherein a young woman presented with recurrent vaginal burning, swelling, and itching occurring approximately 10 min postcoitally. Using her partner's semen, intradermal testing produced 1.6 cm wheal and 6.0 cm flare. The patient underwent intravaginal desensitization and was instructed to have intercourse every 48 h to maintain desensitization. At 5 months follow-up, they were practicing coitus interruptus with success.[25]

CONCLUSION

Suspect genital hypersensitivity if patient has unexplained symptoms which are recurrent or not responding to treatment. A careful inquiry regarding sexual practices/use of protectives/pleasure enhancer/hygienic products is needed. Identify the culprit by history/patch test/prick testing. Manage the condition by avoidance of sensitizer or by desensitization.[26]

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Sonnex C. Genital allergy. Sex Transm Infect 2004;80:4-7.
2. Elsner P, Wilhelm D, Maibach HI. Multiple parameter assessment of vulvar irritant contact dermatitis. Contact Dermatitis 1990;23:20-6.
3. Eubel J, Diepgen TL, Weisshaar E. Allergic diseases in the genital area. Hautarzt 2015;66:45-52.
4. Friedman SA, Bernstein IL, Enrione M, Marcus ZH. Successful long-term immunotherapy for human seminal plasma anaphylaxis. JAMA 1984;251:2684-7.
5. Kroon S. Allergy to human seminal plasma: A presentation of six cases. Acta Derm Venereol 1980;60:436-9.
6. Bernstein JA, Sugumaran R, Bernstein DI, Bernstein IL. Prevalence of human seminal plasma hypersensitivity among symptomatic women. Ann Allergy Asthma Immunol 1997;78:54-8.
7. Witkin SS, Jeremias J, Ledger WJ. A localized vaginal allergic response in women with recurrent vaginitis. J Allergy Clin Immunol 1988;81:412-6.
8. Sublett JW, Bernstein JA. Seminal plasma hypersensitivity reactions: An updated review. Mt Sinai J Med 2011;78:803-9.
9. Ridley CM. Contraception and the skin. Br J Fam Plann 1981;7:67-70.
10. Roddy RE, Cordero M, Cordero C, Fortney JA. A dosing study of nonoxynol-9 and genital irritation. Int J STD AIDS 1993;4:165-70.
11. Turjanmaa K, Reunala T. Condoms as a source of latex allergen and cause of contact urticaria. Contact Dermatitis 1989;20:360-4.
12. García Ortiz JC, Moyano JC, Alvarez M, Bellido J. Latex allergy in fruit-allergic patients. Allergy 1998;53:532-6.
13. Fisher AA, Brancaccio RR. Allergic contact sensitivity to propylene glycol in a lubricant jelly. Arch Dermatol 1979;115:1451.
14. Haddad ZH. Clearer picture of food and allergy is still needed. Perspect Allergy 1978;1:2-3.
15. Held JL, Ruszkowski AM, Deleo VA. Consort contact dermatitis due to oak moss. Arch Dermatol 1988;124:261-2.
16. Rohatiner JJ. Relationship of *Candida albicans* in the genital and anorectal tracts. Br J Vener Dis 1966;42:197-200.
17. Marren P, Wojnarowska F, Powell S. Allergic contact dermatitis and vulvar dermatoses. Br J Dermatol 1992;126:52-6.
18. Salim A, Powell S, Wojnarowska F. Allergic contact dermatitis of the vulva-an overlooked diagnosis. J Obstet Gynaecol 2002;22:447.
19. Lewis FM, Shah M, Gawkrodger DJ. Contact sensitivity in pruritus

vulvae: Patch test results and clinical outcome. Am J Contact Dermat 1997;8:137-40.
20. Dooms-Goossens A, Matura M, Drieghe J, Degreef H. Contact allergy to imidazoles used as antimycotic agents. Contact Dermatitis 1995;33:73-7.
21. Rietschel RL, Fowler JF Jr., editors. Fisher's Contact Dermatitis. 5th ed. Philadelphia: Lippincott Williams and Wilkins; 2001. p. 42-4.
22. Larsen WG. Sanitary napkin dermatitis due to the perfume. Arch Dermatol 1979;115:363.
23. Rietschel RL, Fowler JF. Fisher's Contact Dermatitis. 6th ed. New Delhi: CBS Publishers and Distributors; 2008. p. 76-8.
24. Lucke TW, Fleming CJ, McHenry P. Clothing dye dermatitis of the scrotum. Contact Dermatitis 1998;38:224.
25. Lee-Wong M, Collins JS, Nozad C, Resnick DJ. Diagnosis and treatment of human seminal plasma hypersensitivity. Obstet Gynecol 2008;111 2 Pt 2:538-9.
26. Wilkinson SM. Hypersensitivity to topical corticosteroids. Clin Exp Dermatol 1994;19:1-11.